

Notice of Allowability	Application No.	Applicant(s)	<i>[Signature]</i>
	09/775,359	SOUNDARARAJAN, RENGARAJAN	
	Examiner Matthew A. Thexton	Art Unit 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to _____.
2. The allowed claim(s) is/are 1-16, 29, 32 and 33.
3. The drawings filed on 01 February 2001 are accepted by the Examiner.
4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some*
 - c) None
 of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application (PTO-152)
6. Interview Summary (PTO-413),
Paper No./Mail Date _____
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-16, 29, 32, and 33, drawn to polymer formulations for radiation shielding and methods of making same, classified in class 252, subclass 478.
- II. Claims 17-28, 30, and 31, drawn to polymer formulations, classified in class 524, subclasses 712 and 780.
- III. Claims 34-55, drawn to methods of applying a surface, specified as spraying in dependent claim embodiments, classified in class 427, subclasses 5 and 6.
- IV. Claims 56-63, drawn to methods of molding, specified as compression molding in dependent claim embodiments, classified in class 264, subclass 500+.
- V. Claims 64-70 and 78-84, drawn to methods of immobilizing radioactive wastes, classified in class 588, subclasses 6-8.
- VI. Claims 71-77, drawn to methods of immobilizing metal ion wastes, classified in class 588, subclass 255.
- VII. Claims 85-88, drawn to methods of containing radioactive wastes by placing in container, classified in class 588, subclass 16

VIII. Claims 89-133, drawn to containers for storing radioactive material, specified as waste in dependent claim embodiments, classified in class 250, subclass 506.1, et al.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as polyurethane foam and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Inventions I-II and III-VIII are related as product/methods of making and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product (polymer formulations) can be used in distinct methods including

coating, mixing with radioactive material to immobilize same, mixing with metal ions to immobilize same, and molding to form objects.

Inventions III and IV-VIII are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions do not involve the same preparatory steps since invention III does not involve shaping or mixing to immobilize a component or assembling into a container.

Inventions IV and V-VI are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions do not involve the same steps or same effects since inventions V-VI involve mixing to immobilize a component therein while invention IV involves molding of the polymer without an additional immobilized component.

Inventions IV and VII are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions do not involve the same steps, invention IV requires molding; invention VII involves manipulating materials and ultimately placing same into a container.

Inventions IV and VIII are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the

process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case although the products/apparatus of invention VIII may use the molded intermediate of method invention IV, the methods can be used to make other materially different products such as wall board.

Inventions V and VI are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions involve distinct steps, particularly Invention VI requires the distinct step of chemical formulating of anions into the immobilization method.

Inventions V and VII are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions require distinct steps.

Inventions V and VIII are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions do not require corresponding steps and means.

Inventions VI and VII are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In

the instant case the different inventions require distinct steps and operate on different materials.

Inventions VI and VIII are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions do not require corresponding steps or means and they operate on different materials.

Inventions VII and VIII are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process does not require the particulars of the apparatus and thus may be practiced by materially different apparatus.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for any of Groups I-VIII is not required for any of the others, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with Samuel Digirolamo at 314-345-6225 on 2004 June 14 and 22 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-16, 29, 32, and 33.

In view of the authorization to cancel the non-elected claims, as noted hereinbelow, it is NOT necessary for Applicant to affirm this election in replying to this Office action.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Samuel Digirolamo at 314-345-6225 on 2004 June 22.

The application has been amended as follows:

Claims 17-28, 30, 31, and 34-133 have been canceled.

In Claim 33, line 8, the spelling of "phenylpropyl" was corrected.

In Claim 10, the words "by Great Lakes Chemical Corp., West Lafayette, Indiana" were canceled.

The Title was changed to "Composition for Shielding Radioactivity".

Citation of Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Roy et al. (US 5789648-A), cited by Applicant, discloses several classes of polymers, none of which includes urethanes (column 10, lines 1-7), to be formulated with toxic materials, which may or may not make up container walls (column 10, lines 13-19) of a containment system.

Clatty et al. (US 5401824-A), cited by Applicant, discloses formulations for preparing polyurethanes having flame retardant such as that disclosed by Applicant (column 17, lines 43-46).

Quapp et al. (US 5786611-A), cited by Applicant, discloses formulations of depleted uranium oxides as matrix material for cement to provide good gamma radiation shielding and the water in the cement is a neutron absorber.

Manchak, Jr. et al. (US 5075045) discloses heat curable radiation shielding material such as polypropylene and boron (column 8, lines 13-15) and castable immobilization material mixed with radioactive material, such as cementitous or polyorganic materials, which is cast interiorly of the shielding material.

Kalb et al. (US 6030549-A), cited by Applicant, discloses formulations of depleted uranium oxides as additives for thermoplastics such as polyethylene or polypropylene to provide good gamma radiation shielding in shielding shapes such as containers and panels and which may optionally be formulated with low-level radioactive waste.

Statement of Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

The prior art which discloses formulating synthetic resins with depleted uranium fails to suggest polyurethane for that purpose. Furthermore, that prior art fails to suggest the co-formulation of flame retardant to achieve the degree of flame retardancy disclosed by Applicant.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew A. Thexton whose telephone number is 571-272-1125. The examiner can normally be reached on Monday-Friday, 9:30 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan S Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Matthew A. Thexton
Matthew A. Thexton
Primary Examiner
Art Unit 1714